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Patent Agilent Docket No.: 10003976-4

## **LISTING OF CLAIMS**

The following listing of claims replaces all prior versions.

1	1. (Currently amended) A heterojunction bipolar transistor (HBT),
2	comprising:
3	a collector;
4	an emitter; and
5	a base located between the collector and the emitter, the base including a layer
6	of gallium arsenide antimonide (GaAsSb) less than 49 nanometers (nm) thick and
7	having a doping concentration greater than $2.5 \times 10^{20} \times 10^{19}$ acceptors/cm <sup>3</sup> .
1	2. (Original) The HBT of claim 1, wherein the gallium arsenide antimonide of
2	the base has an arsenic (As) fraction in a range from about 50% to about 51%.
-	the base has an arseme (As) maction in a range from about 50% to about 51%.
1	3. (Original) The HBT of claim 1, wherein the gallium arsenide antimonide of
2	the base has an arsenic (As) fraction in a range from about 50% to about 65%.
1	4. (Original) The HBT of claim 1, wherein the gallium arsenide antimonide of
2	the base has an arsenic (As) fraction in a range from about 50% to about 60%.
1	5 (Original) The IDT of alaim 1 and a state of the state
2	5. (Original) The HBT of claim 1, wherein the gallium arsenide antimonide of
-	the base has an arsenic (As) fraction in a range from about 54% to about 56%.
1	6. (Original) The HBT of claim 1, wherein the gallium arsenide antimonide of
2	the base has an arsenic (As) fraction of approximately 55%.
1	7. (Original) The HBT of claim 1, wherein the base layer of GaAsSb is less
2	than 20 nm thick.
1	9 (Original) The LTDT of 1 is 1 and 1 is 1
2	8. (Original) The HBT of claim 1, wherein the base layer of GaAsSb is
3	strained so that its lattice constant conforms to the lattice constant of the collector and the emitter.
_	the entities.

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- 1 9. (Currently amended) The HBT of claim 1, wherein the base layer of 2 GaAsSb is doped with beryllium (Be) at a doping concentration of between approximately  $6 \times 10^{19} 2.5 \times 10^{20}$  and  $4 \times 10^{20}$  acceptors/cm<sup>3</sup>. 3 1 10. (Currently amended) The HBT of claim 1, wherein the base layer of 2 GaAsSb is doped with carbon (C) at a doping concentration of between approximately  $6 \times 10^{19} = 2.5 \times 10^{20}$  and  $4 \times 10^{20}$  acceptors/cm<sup>3</sup>. 3 1 11. (Currently amended) The HBT of claim 7, wherein the base layer of 2 GaAsSb is doped with carbon (C) at a doping concentration of between approximately  $6 \times 10^{19} \, 2.5 \times 10^{20}$  and  $4 \times 10^{20}$  acceptors/cm<sup>3</sup>. 3 1 12. (Currently amended) A method for making a heterojunction bipolar 2 transistor (HBT), the method comprising the steps of: 3 forming a collector; 4 forming an emitter; and 5 forming a base located between the collector and the emitter, the base including a layer of gallium arsenide antimonide (GaAsSb) less than 49 nanometers 6 7 (nm) thick and having a doping concentration greater than 2.5 X 10<sup>20</sup> 6 X 10<sup>19</sup> 8 acceptors/cm<sup>3</sup>. 1 13. (Original) The method of claim 12, wherein the base is formed of gallium arsenide antimonide having an arsenic (As) fraction in a range from about 50% to 2 about 51%. 3 14. (Original) The method of claim 12, wherein the base is formed of gallium arsenide antimonide having an arsenic (As) fraction in a range from about 50% to about 65%.
- 1 15. (Original) The method of claim 12, wherein the base is formed gallium arsenide antimonide having an arsenic (As) fraction in a range from about 50% to 2 3 about 60%.

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1	16. (Original) The method of claim 12, wherein the base is formed of gallium
2	arsenide antimonide having an arsenic (As) fraction in a range from about 54% to
3	about 56%.
1	17. (Original) The method of claim 12, wherein the base is formed of gallium
2	arsenide antimonide having an arsenic (As) fraction of approximately 55%.
1	18. (Original) The method of claim 12, wherein the base layer of GaAsSb is
2	less than 20 nm thick.
1	19. (Original) The method of claim 12, further comprising the step of
2	straining the base layer of GaAsSb so that its lattice constant conforms to the lattice
3	constant of the collector and the emitter.
1	20. (Currently amended) The method of claim 12, further comprising the step
2	of doping the base layer of GaAsSb with beryllium (Be) at a doping concentration of
3	between approximately $6 \times 10^{19} 2.5 \times 10^{20}$ and $4 \times 10^{20}$ acceptors/cm <sup>3</sup> .
1	21. (Currently amended) The method of claim 12, further comprising the step
2	of doping the base layer of GaAsSb with carbon (C) at a doping concentration of
3	between approximately $6 \times 10^{19} = 2.5 \times 10^{20}$ and $4 \times 10^{20}$ acceptors/cm <sup>3</sup> .
1	22. (Canceled)
1	23. (Canceled)
1	24. (Canceled
1	25. (Canceled)